

No cold-wave signals were ordered during the month.

### FORECASTS FOR 24 HOURS IN ADVANCE.

The forecasts for districts east of the Rocky Mountains for June, 1890, were made by Assistant Professor H. A. Hazen, and those for the Pacific coast districts were made at San Francisco, Cal., by 2d Lieutenant J. E. Maxfield, Signal Corps.

Percentages of forecasts verified, June, 1890.

States.		States.	
Maine.....	68.4	Kentucky.....	86.1
New Hampshire.....	76.1	Ohio.....	82.6
Vermont.....	79.9	West Virginia.....	83.9
Massachusetts.....	76.3	Indiana.....	80.9
Rhode Island.....	77.8	Illinois.....	84.8
Connecticut.....	74.5	Lower Michigan.....	79.5
Eastern New York.....	77.8	Upper Michigan.....	76.3
Western New York.....	71.6	Wisconsin.....	75.9
Eastern Pennsylvania.....	82.8	Minnesota.....	72.3
Western Pennsylvania.....	80.3	Iowa.....	73.3
New Jersey.....	78.3	Kansas.....	79.1
Delaware.....	80.6	Nebraska.....	74.7
Maryland.....	85.4	Missouri.....	88.1
District of Columbia.....	84.5	Colorado.....	86.3
Virginia.....	84.5	North Dakota.....	72.7
North Carolina.....	84.4	South Dakota.....	79.5
South Carolina.....	84.3	Southern California*.....	92.6
Georgia.....	85.1	Northern California*.....	88.9
Eastern Florida.....	85.3	Oregon*.....	77.8
Western Florida.....	87.9	Washington*.....	79.5
Alabama.....	89.3	By elements: Weather.....	84.6
Mississippi.....	88.6	Temperature!.....	75.9
Louisiana.....	87.6	Monthly percentage of weather and	
Texas.....	92.6	temperature combined †.....	81.1
Arkansas.....	85.7		
Tennessee.....	82.5		

\* In determining the monthly percentage of weather and temperature combined, the Pacific coast states are not included. † The forecasts of temperature in districts east of the Rocky Mountains for June, 1890, were made with reference to the maximum temperature alone; that is, a prediction of warmer or cooler indicated that the maxi-

mum temperature of the day designated would be higher or lower than the maximum of the previous day. ‡ The monthly percentage of weather and temperature combined is determined by multiplying the percentage of weather by 6, and the percentage of temperature by 4, and dividing their sum by 10.

### FORECASTS FOR 48 AND 72 HOURS IN ADVANCE.

Appreciating the great importance that long time predictions possess for the general public the Chief Signal Officer has authorized forecasts for forty-eight and seventy-two hours, covering the second and third days in advance. Such forecasts are optional with the predicting officer, and are only made when clearly in the public interest, and cover, in all cases, considerable areas of country, and are not confined to localities.

Percentages of verifications of forecasts made for second day in advance. Number of predictions made: weather, 43; temperature, 102. Percentages of verifications: weather, 88.8; temperature, 72.2. Weather and temperature combined, 78.6. For third day in advance. Number of predictions made: weather, 6; temperature, 8. Percentages of verifications: weather, 91.7; temperature, 61.2. Weather and temperature combined, 77.4.

Percentages of verifications of weather and temperature signals reported by directors of the various State Weather Services for June, 1890.

States.	Weather.	Temperature.	States.	Weather.	Temperature.
Illinois.....	78.8	83.2	New Jersey.....	85.4	91.2
Indiana.....	78.0	87.0	North and South Dakota....	82.0	75.0
Michigan.....	84.0	86.0	Ohio.....	80.0	87.0
Minnesota.....	66.0	67.0	Pennsylvania.....	86.0	92.0
Missouri.....	85.0	89.0	South Carolina.....	77.0	81.4
Nebraska.....	93.1	85.2			

## STATE WEATHER SERVICES.

[Temperature in degrees Fahrenheit; precipitation, including melted snow, in inches and hundredths.]

The following extracts and summaries are republished from reports for June, 1890, of the directors of the various state weather services:

### ALABAMA.

The month was hot and dry.

**Temperature.**—Highest monthly mean, 88.3, at Goodwater; lowest monthly mean, 72.8, at Chepultepec; maximum, 99, at Gadsden, 80th; minimum, 50, at Jasper, 5th; greatest local monthly range, 43, at Jasper; least local monthly range, 17, at Chepultepec.

**Precipitation.**—Greatest monthly, 5.92, at Uniontown; least monthly, 1.46, at Guntersville.

**Wind.**—Prevailing direction, southeast.—Prof. P. H. Mell, Auburn, director; J. M. Quarles, Private, Signal Corps, assistant.

### ARKANSAS.

**Temperature.**—The mean was about 1 above the normal; maximum, 106, at Lead Hill, 26th; minimum, 50, at Newport, 8th; greatest local monthly range, 49, at Lead Hill; least local monthly range, 28, at Conway.

**Precipitation.**—The average was about 0.26 above the normal; greatest monthly, 9.29, at Little Rock; least monthly, 2.18, at Lead Hill.—M. F. Locke, Commissioner of Agriculture, Little Rock, director; W. U. Simons, Sergeant, Signal Corps, assistant.

### COLORADO.

**Temperature.**—The mean was 3 above the average for the past four years; highest monthly mean, 74.5, at Lamar; lowest monthly mean, 43.8, at Leadville; maximum, 103, at Lamar, 22d; minimum, 12, at Breckenridge, 6th; greatest local monthly range, 71, at Breckenridge; least local monthly range, 37, at Cumbres.

**Precipitation.**—There was about one-half the usual precipitation.

**Wind.**—Prevailing direction, west.—Prof. F. H. Loud, Colorado Springs, director; W. S. Miller, Sergeant, Signal Corps, assistant.

### ILLINOIS.

**Temperature.**—Highest monthly mean, 80.2, at Winnebago; lowest monthly mean, 70.0, at Sandwich; maximum, 104, at East Peoria, 25th, and at Pontiac, 27th; minimum, 40, at Aurora, 8th; greatest local monthly range, 60, at Pontiac; least local monthly range, 38, at Golconda and Pana.

**Precipitation.**—Greatest monthly, 18.57, at Cockrell; least monthly, 2.10, at McLeansborough.

**Wind.**—Prevailing direction, southwest.—John Craig, Sergeant, Signal Corps, Springfield, in charge.

### INDIANA.

**Temperature.**—Highest monthly mean, 82.8, at Huntingburgh; lowest monthly mean, 70.2, at Valparaiso; maximum, 104, at Huntingburgh, 29th,

and at Muncie, 23d; minimum, 35, at Point Isabel, 8th; greatest local monthly range, 60, at Point Isabel; least local monthly range, 32, at Shelbyville.

**Precipitation.**—Greatest monthly, 10.89, at Huntingburgh; least monthly, 2.26, at Mount Vernon.

**Wind.**—Prevailing direction, southwest.—Prof. H. A. Huston, La Fayette, director; C. F. R. Wappenhans, Sergeant, Signal Corps, assistant.

### IOWA WEATHER AND CROP SERVICE.

The month was the hottest, and in some localities, the wettest June in Iowa in the last twenty years.

**Temperature.**—Highest monthly mean, 78.4, at Washington; lowest monthly mean, 67.7, at Iowa City; maximum, 106, at Glenwood, 21st; minimum, 44, at Wesley, 11th; greatest local monthly range, 56, at Glenwood; least local monthly range, 38, at Independence.

**Precipitation.**—Greatest monthly, 16.53, at Fayette; least monthly, 1.57, at Oskaloosa.

**Wind.**—Prevailing direction, south.—J. R. Sage, Des Moines, director; G. M. Chappel, Sergeant, Signal Corps, assistant.

### KANSAS.

**Temperature.**—The temperature was above the normal in all parts of the state, the average excess being 3.8; highest monthly mean, 86.4, at Ellis; lowest monthly mean, 72.2, near Concordia; maximum, 120, at Collyer, 21st; minimum, 40, at Lakin, 4th and 7th, and at Allison, 9th; greatest local monthly range, 76, at Gibson; least local monthly range, 38, at Salina; greatest daily range, 53, at Lakin, 5th; least daily range, 9, at Leavenworth, 4th.

**Precipitation.**—There was an excess in Decatur, Norton, Phillips, and Osborne counties, which extended southeastward, culminated in Harvey, and diminished in Sedgwick to Sumner county, where it changed to a deficiency. There was a deficiency of 2.63 in the eastern, and of 2.72 in the western division; greatest monthly, 8.20, at Halstead; least monthly, 0.20, at Gove City.

**Wind.**—Prevailing direction, south.—Prof. J. T. Lovewell, Topeka, director; T. B. Jennings, Sergeant, Signal Corps, assistant.

### KENTUCKY.

**Temperature.**—The mean was about 4 above the normal; maximum, 101, at Murray, 26th and 29th; minimum, 51, at Pellville, 8th; greatest monthly range, 49, at Murray and Pellville; least monthly range, 29, at South Fork.

**Precipitation.**—The average was slightly in excess of the normal; greatest monthly, 9.66, at Shelbyville; least monthly, 1.20, at Canton.

**Wind.**—Prevailing direction, southwest.—Dr. E. A. Grant, Louisville, director; Frank Burke, Sergeant, Signal Corps, assistant.

## LOUISIANA.

Frequent excessive local rains occurred, particularly in the southern part of the state, and a very warm period during the latter part of the month.

**Temperature.**—The mean was 0.1 above the normal; highest monthly mean, 84.5, at Mandeville; lowest monthly mean, 78.2, at Maurepas; maximum, 101, at Mandeville, 14th, and at Cameron, 20th and 28th; minimum, 58, at Marks-ville, 2d, and at Clinton, 6th; greatest local monthly range, 39, at Clinton; least local monthly range, 24, at Emilie.

**Precipitation.**—The average was 2.02 above the normal; greatest monthly, 12.32, at Clinton; least monthly, 3.12, at Shreveport.

**Wind.**—Prevailing direction, south.—*R. E. Kerkam, Sergeant, Signal Corps, New Orleans, in charge.*

## MICHIGAN.

The notable features of the month were the hot wave of the last seven days and the heavy local rainfalls.

**Temperature.**—The mean was 3.2 above the normal of the last fifteen years; highest monthly mean, 75.3, at Bangor; lowest monthly mean, 59.3, at Atlantic; maximum, 100, at Bangor, 28th; minimum, 31, at Roscommon, 8th; greatest local monthly range, 65, at Ivan; least local monthly range, 36, at Atlantic; greatest daily range, 48, at Grayling, 8th; least daily range, 4, at Grand Haven, 6th, and at Saint Ignace, 15th.

**Precipitation.**—The average was 0.34 below the normal of the last fifteen years; greatest monthly, 6.30, at Otsego; least monthly, 1.75, at Gaylord.

**Wind.**—Prevailing direction, southwest.—*N. B. Conger, Sergeant, Signal Corps, Lansing, director.*

## MINNESOTA.

**Temperature.**—The temperature was 2 to 3 above the normal over the greater portion of the state, and in the northwestern counties the excess was about 7. In the vicinity of Lake Superior it was slightly below the normal; highest monthly mean, 71.3, at La Crosse, Wis.; lowest monthly mean, 57.5, at Duluth; maximum, 100, at Grand Meadow, 28th; minimum, 37, at Leech Lake, 7th; greatest local monthly range, 57, at Leech Lake; least local monthly range, 38, at Farmington and Rolling Green; greatest daily range, 43, at Saint Vincent, 7th; least daily range, 4, at Saint Vincent, 21st.

**Precipitation.**—In the southeastern portion of the state the rainfall exceeded that of any June during the last 18 years; greatest monthly, 13.05, at Redwood Falls; least monthly, 2.56, at Pine River Dam.

**Wind.**—Prevailing direction, southeast.—*John Healy, Corporal, Signal Corps, Saint Paul, in charge.*

## MISSOURI.

**Temperature.**—Highest monthly mean, 79.9, at Miami; lowest monthly mean, 70.9, at Kirksville; maximum, 105, at Miami; minimum, 50.0, at Oregon and Kansas City.

**Precipitation.**—The rainfall was very irregular throughout the state, and there was no general rain during the month; greatest monthly, 4.58, at Kirksville; least monthly, 0.37, at Lamonte.—*Prof. Francis E. Nipher, Saint Louis, director.*

## METEOROLOGICAL REPORT OF THE MISSOURI STATE BOARD OF AGRICULTURE.

The month has been remarkable for high temperature and small rainfall.

**Temperature.**—The mean temperature was 3.5 above the normal; highest monthly mean, 83.7, at Liberty; lowest monthly mean, 73.8, at Cassville; maximum, 106, at Protem, 26th, and Eldon, 30th; minimum, 44, at Glenwood, 6th; greatest local monthly range, 55, at Excelsior; least local monthly range, 30, at Windsor.

**Precipitation.**—The average was 3.00 below the normal; greatest monthly, 7.47, at Princeton; least monthly, 0.37, at Lamonte.

**Wind.**—Prevailing direction, south.—*Levi Chubbuck, Secretary of State Board of Agriculture, Columbia, director; A. L. McRae, Sergeant, Signal Corps, assistant.*

## NEBRASKA.

The features of the month were the extremes in temperature and precipitation.

**Temperature.**—The mean was about 5 above the normal; maximum, 108, at Ansley and Theford; minimum, 32, at Alliance. A light frost was reported in connection with this minimum, but no damage has been reported.

**Precipitation.**—In the extreme western part of the state less than 1.00 fell, from there eastward the amount increased irregularly to the Missouri River. The greater part of the state received 3.00 or 4.00, although a limited region on the upper Niobrara received about 3. The greatest rainfall occurred in an area stretching east from Tekamah, where 18.70 fell.—*Prof. Goodwin D. Swezey, Crete, director; G. A. Loveland, Sergeant, Signal Corps, assistant.*

## NEVADA.

The month has been one of the coolest and driest on record.

**Temperature.**—The mean was 4.1 below the normal; highest monthly mean, 84.5, at El Dorado Canyon; lowest monthly mean, 51.8, at Ruby Hill; maximum, 109, at El Dorado Canyon, 29th; minimum, 24, at Ruby Hill, 3d, and at Ely, 2d.

**Precipitation.**—The precipitation was the least on record for the state; the only portion in which precipitation fell was in the eastern and northern counties, where light amounts were reported on the last days of the month. A snowfall of 3.00 was reported at Ruby Hill, and 1.00 at Tuscarora.

**Wind.**—Prevailing direction, south.—*Prof. Chas. W. Friend, Carson City, director; H. E. Wilkinson, Corporal, Signal Corps, assistant.*

## NEW ENGLAND METEOROLOGICAL SOCIETY.

**Temperature.**—The average was 1.8 below the normal; highest monthly mean, 68.7, at Northampton; lowest monthly mean, 54.0, at Eastport; maximum, 94, at Westborough, 24th; minimum, 26, at Berlin Falls, 3d; greatest local monthly range, 60, at Berlin Falls; least local monthly range, 26, at Nantucket; greatest daily range, 53, at Berlin Mills, 11th; least daily range, 0, at Walpole, 12th.

**Precipitation.**—The average was 0.24 below the normal; greatest monthly, 6.46, at West Milan; least monthly, 1.35, at Block Island.

**Wind.**—Prevailing direction, northwest.—*Prof. William H. Niles, Boston, Mass., president; Prof. Winslow Upton, Providence, R. I., secretary; J. Warren Smith, Private, Signal Corps, assistant.*

## NEW JERSEY.

**Temperature.**—The mean was 1.3 above the normal; highest monthly mean, 70.6, at Trenton; lowest monthly mean, 67.0, at Allaire; maximum, 95, at Woodbury and Imlaystown, 5th; minimum, 42, at Gillette, 30th; greatest local monthly range, 48, at Gillette; least local monthly range, 30, at Bridgeton, Readington, Trenton, and Union; greatest daily range, 48, at Readington, 30th; least daily range, 3, at Ocean City, 16th.

**Precipitation.**—The average was 0.89 below the normal; greatest monthly, 5.16, at Tenafly; least monthly, 0.99, at Bridgeton.

**Wind.**—Prevailing direction, southwest.—*E. W. McGann, Sergeant, Signal Corps, New Brunswick, in charge.*

## NEW YORK.

**Temperature.**—Highest monthly mean, 71.5, at Eden Centre; lowest monthly mean, 58.5, at Keene Valley; maximum, 97, at Eden Centre, 30th; minimum, 30, at Sherman, 8th; greatest local monthly range, 64, at Kendall; least local monthly range, 92, at Brooklyn; greatest daily range, 46, at Keene Valley, 30th; least daily range, 3, at Palermo, 7th.

**Precipitation.**—Greatest monthly, 6.93, at Pendleton Centre; least monthly, 2.10, at Watervleit Arsenal.

**Wind.**—Prevailing direction, southwest.—*Prof. E. A. Fuytes, Ithaca, director; I. G. Gardiner, Corporal, Signal Corps, assistant.*

## NORTH CAROLINA.

**Temperature.**—The mean was 3 below the normal; highest monthly mean, 82.4, at Fayetteville; lowest monthly mean, 66.6, at Highlands; maximum, 102, at Chapel Hill, 29th; minimum, 40, at Franklin, 8th; greatest local monthly range, 54, at Douglas; least local monthly range, 23, at Hatteras.

**Precipitation.**—The average was 1.65 below the normal; greatest monthly, 6.93, at Washington; least monthly, 0.52, at Charlotte.

**Wind.**—Prevailing direction, southwest.—*Dr. Herbert B. Battle, Raleigh, director; C. F. von Herrmann, Sergeant, Signal Corps, assistant.*

## NORTH AND SOUTH DAKOTA.

**Temperature.**—The mean was about 4 above the normal; highest monthly mean, 72.5, at Wahpeton, N. Dak.; lowest monthly mean, 65.1, at Fort Buford, N. Dak.; maximum, 99, at Fort Sully and Rapid City, S. Dak., 25th, and at Grand Forks, N. Dak., and Woonsocket, S. Dak., 26th; minimum, 30, at Aberdeen, S. Dak., 7th; greatest local monthly range, 60, at Highmore, S. Dak.; least local monthly range, 40, at Sioux Falls, S. Dak.

**Precipitation.**—The average was about 1.98 above the normal; greatest monthly, 10.53, at Millbank, S. Dak.; least monthly, 2.19, at Vermillion.

**Wind.**—Prevailing direction, southeast.—*S. W. Glenn, Sergeant, Signal Corps, Huron, S. Dak., in charge.*

## OHIO.

June was marked by unusually warm weather and excessive rainfall.

**Temperature.**—The mean was 3.8 above the normal; maximum, 101, at Wapakoneta, 28th; minimum, 39, at Wauseon, 8th; greatest daily range, 42, at Logan, 3d; least daily range, 7, at Sandusky, 27th.

**Precipitation.**—The rainfall was well distributed throughout the month, and the largest on record in this bureau for June. The average was 0.65 above the normal; greatest monthly, 8.72, at Newcomerstown.

**Wind.**—Prevailing direction, southwest.—*Prof. B. F. Thomas, Columbus, director; Lieut. Charles E. Kilbourne, secretary; C. M. Strong, Corporal, Signal Corps, assistant.*

## OREGON.

**Temperature.**—The mean was 2.2 below the normal; maximum, 103, at Grant's Pass, 29th; minimum, 25, at Beulah, 2d.

**Precipitation.**—The precipitation was generally above the average; the greatest amount, 6.40 was reported from the Cascades, and less than one inch was reported south of the Blue Mountains.

**Wind.**—Prevailing direction, west.—*Hon. H. E. Hayes, Master State Grange, Oswego, director; B. S. Pague, Sergeant, Signal Corps, assistant.*

## PENNSYLVANIA.

**Temperature.**—The mean was 2 above the normal; highest monthly mean, 73.7, at Uniontown and Huntingdon; lowest monthly mean, 64.2, at Dyberry; maximum, 97, at Carlisle, 5th, and at Lynnport, 30th; minimum, 33, at Charlesville, 14th; greatest local monthly range, 31.3, at Wilkes Barre; least local monthly range, 14, at Erie; greatest daily range, 47, at Lock Haven, 25th; least daily range, 2, at Wellsborough, 21st.

**Precipitation.**—The average was nearly 0.50 inch below the normal; greatest monthly, 5.74, at Forks of Neshaminy; least monthly, 1.30, at Philadelphia.

**Wind.**—Prevailing direction, west.—*Under direction of the Franklin Institute, Philadelphia; T. F. Townsend, Sergeant, Signal Corps, assistant.*

## SOUTH CAROLINA.

**Temperature.**—Highest monthly mean, 84.8, at Spartanburgh; lowest monthly mean, 76.6, at Walhalla; maximum, 103, at Cheraw, 29th; minimum, 56, at Spartanburgh, 8d; greatest local monthly range, 43, at Spartanburgh; least local monthly range, 20, at Walhalla.

**Precipitation.**—The average was about 1.38 below the normal; greatest monthly, 4.27, at Batesburgh; least monthly, 0.78, at Greenwood.

**Wind.**—Prevailing direction, southwest.—Hon. A. P. Butler, Columbia, director; G. E. Hunt, Sergeant, Signal Corps, assistant.

## TENNESSEE.

**Temperature.**—Highest monthly mean, 81, at McKenzie, Woodstock, and Memphis; lowest monthly mean, 73, at Greeneville; maximum, 102, at Hohenwald, 29th, and at Watkins, 30th; minimum, 56, at Rugby, 7th, and at Jacksboro, 8th; greatest local monthly range, 44, at Hohenwald; least local monthly range, 25, at McKenzie and Covington; greatest daily range, 31, at Hohenwald, 1st; least daily range, 3, at Florence Station, Lewisburgh, and Nunnally, 5th, and at Jacksboro, 23d.

**Precipitation.**—The average was, with one exception (in 1887), the smallest June rainfall during the last eight years; greatest monthly, 8.86, at DuPont; least monthly, 0.69, at Kingdon.

**Wind.**—Prevailing direction, southwest.—J. D. Plunket, M. D., Nashville, director; H. C. Bate, Signal Corps, assistant.

## TEXAS.

**Temperature.**—The mean varied slightly from the normal in all parts of the state; highest monthly mean, 83.6, at Rio Grande City; lowest monthly mean, 74.4, at Fort Elliott; maximum, 108, at Haskell and Mesquite, 30th; minimum, 38, at Hartley, 8th; greatest local monthly range, 59, at Hartley; least local monthly range, 25, at Galveston.

**Precipitation.**—Along the coast and over the eastern portion of the state it was generally normal, except in some localities where it was excessive, over other parts of the state it was below the normal, and none fell north of the 32d parallel and west of the 99th meridian; greatest monthly, 7.42, at Galveston; least monthly, 0.00, at Haskell.—D. D. Bryan, Galveston, director; I. M. Cline, Sergeant, Signal Corps, assistant.

**Meteorological record of Army post surgeons, voluntary, and other co-operating observers, June, 1890.**

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
<b>Alabama.</b>					<b>Arizona—Cont'd.</b>				
Bermuda*.....	96	68	77.6	0.36	Grand Central Mill.....	96	33	67.0	0.15
Carrollton.....	96	67	79.3	4.02	Holbrook.....	93	58	75.6	0.10
Chepultepec.....	98	63	78.3	5.33	Lochiel.....	112	73	95.1	0.00
Columbiana.....	98	62	78.3	5.33	Maricopa.....	95	43	75.3	0.00
Decatur (1).....	98	58	80.1	2.37	Mount Huachuca.....	106	49	77.6	0.01
Decatur (2).....	98	58	80.1	2.37	Natural Bridge.....	106	49	77.6	0.01
Double Springs.....	98	58	80.1	2.37	Oro.....	106	49	77.6	0.01
Elkmont.....	98	58	80.1	2.37	Payson.....	103	75	87.9	0.00
Eufaula.....	98	58	80.1	2.37	Pantano.....	105	46	78.4	0.00
Evergreen.....	103	61	80.8	5.45	San Carlos.....	104	48	75.0	0.00
Florence.....	97	68	82.1	2.42	San Simon.....	104	48	75.0	0.00
Fort Deposit.....	99	66	81.4	1.81	Show Low.....	105	52	80.7	0.00
Gadsden.....	99	63	79.5	2.64	Signal.....	105	52	80.7	0.00
Goodwater.....	96	70	83.3	2.35	Sinmons.....	105	52	80.7	0.00
Greensborough.....	96	68	79.9	2.68	Strawberry.....	105	52	80.7	0.00
Guntersville.....	94	55	76.7	1.46	Tevison.....	105	52	80.7	0.00
Jasper.....	94	55	76.7	1.46	Texas Hill.....	105	52	80.7	0.00
Livingston (1).....	97	60	77.0	4.50	Tip Top.....	114	75	89.0	0.00
Livingston (2).....	97	60	77.0	4.50	Tombstone.....	99	52	78.2	0.00
Marion.....	98	59	78.2	3.85	Tucson (1).....	105	52	81.7	0.00
Mount Willing.....	98	66	79.7	2.05	Tucson (2).....	107	85	94.4	0.00
Mt. Vernon B'ks.....	101	63	77.8	6.17	Walnut Grove.....	107	85	94.4	0.00
Opelika.....	99	64	79.8	3.28	Walnut Ranch.....	101	58	83.5	0.00
Pine Apple.....	100	64	81.2	3.60	Wilcox.....	101	58	83.5	0.00
Selma (2).....	100	65	81.6	3.16	Yuma.....	101	74	86.3	0.00
Tusculum (1).....	97	68	78.5	5.04	<b>Arkansas.</b>				
Tusculum (2).....	100	62	80.5	5.85	Arkansas City.....	94	58	77.2	4.35
Union Springs.....	95	73	80.9	3.92	Brinkley.....	94	58	77.2	4.35
Uniontown.....	95	65	79.6	5.92	Camden.....	94	58	77.2	4.35
Valley Head.....	96	60	75.6	2.65	Dardanelle.....	96	56	79.0	5.42
<b>Alaska.</b>					Devall's Bluff.....	98	60	79.8	2.68
Juneau.....	77	42	53.2	6.37	Forrest City.....	96	56	79.0	5.42
<b>Arizona.</b>					Fultont.....	96	56	79.0	5.42
Antelope Valley.....					Helena (1).....	100	60	80.2	4.61
Ash Creek.....					Helena (2).....	100	60	80.2	4.61
Banghart's Station.....	95	40	70.4	0.00	Hot Springs.....	106	57	80.1	2.18
Benson.....	98	71	86.3	0.52	Lead Hill.....	97	56	78.6	9.90
Bisbee.....	93	55	76.0	0.03	Little Rock B'ks.....	96	62	82.8	0.80
Calabasas.....					Monticello.....	96	62	82.8	0.80
Casa Grande.....	106	70	88.4	0.00	Newport (1).....	96	62	82.8	0.80
Chiri Cahua M't's.....					Newport (2).....	96	62	82.8	0.80
Cooley's.....					Pine Bluff.....	98	58	78.3	2.98
Dragoon.....					Prescott.....	94	60	78.6	5.32
Dos Cabezos.....					Russellville.....	100	58	79.6	4.56
Dudleyville.....					Texarkana.....	96	60	79.8	5.76
Eagle Pass.....					Winslow.....	91	60	75.7	4.82
Florence.....	107	48	82.2	0.00	<b>British Columbia.</b>				
Fort Apache.....	94	38	67.8	0.00	New Westminster.....	83	45	58.9	3.90
Fort Bowie.....	93	56	76.4	0.00	<b>California.</b>				
Fort Grant.....	92	54	74.6	0.20	Alcade.....	107	58	75.1	0.00
Fort Huachuca.....	94	52	75.0	0.00	Alcatraz Island.....	70	38	55.5	0.00
Fort Lowell.....	108	44	78.2	0.00	Almaden.....	91	50	63.7	0.00
Fort McDowell.....	108	50	81.4	0.00	Anaheim.....	107	64	74.0	0.00
Fort Mojave.....	109	57	83.0	0.00	Angel Island.....	81	44	59.8	0.00
Fort Verde.....	102	46	73.0	0.00	Antioch.....	94	60	79.5	0.00
Gila Bend.....	104	72	89.8	0.00					

## Meteorological record of voluntary observers, &amp;c.—Continued.

Stations.	Temperature. (Fahrenheit.)			Precip'n.	Stations.	Temperature. (Fahrenheit.)			Precip'n.
	Max.	Min.	Mean.			Max.	Min.	Mean.	
<i>California—Cont'd.</i>					<i>California—Cont'd.</i>				
Aptos.....	78	45	61.9	0.00	Pomona.....	96	55	68.5	0.00
Arch Beach.....	90	54	66.2	0.00	Presidio of S. F.....	75	42	55.5	0.08
Athlone.....	102	57	75.8	0.00	Puente.....	106	59	72.3	0.00
Auburn.....	93	34	68.5	0.00	Ravenna.....	101	50	68.5	0.00
Bakersfield.....	103	62	81.6	0.00	Red Bluff.....	103	54	67.0	0.00
Banning.....	100	58	78.5	0.00	Redding.....	108	48	71.3	0.00
Barstow.....	104	48	75.6	0.00	Riverside.....	108	44	67.1	0.00
Belmont.....	88	54	67.2	0.00	Rocklin.....	102	54	73.2	0.00
Benicia Barracks.....	92	47	64.7	0.00	Rumsey.....	102	62	81.3	0.00
Berendo.....	104	60	76.2	0.00	Sacramento (1).....	89	41	64.4	0.00
Berkeley.....	82	46	58.8	0.00	Sacramento (2).....	88	59	70.3	0.00
Bishop Creek.....	104	58	87.0	0.00	Salinas (1).....	72	51	57.4	0.00
Borden.....	110	55	76.3	0.00	Salinas (2).....	67	50	58.8	0.00
Boulder Creek.....	98	40	63.7	0.00	Salton.....	109	65	88.6	0.00
Brighton.....	91	58	71.6	0.00	Sanger Junction.....	108	59	81.2	0.00
Byron.....	94	60	76.7	0.00	San Ardo.....	100	46	68.7	0.00
Caliente.....	100	60	77.0	0.00	San Diego B'ks.....	90	51	66.0	0.00
Calistoga.....	95	50	69.1	0.00	San Gabriel.....	106	61	76.5	0.00
Castroville.....	72	50	59.2	0.00	San Jose.....	90	53	63.6	0.00
Centerville.....	94	54	67.0	0.00	San Mateo.....	84	50	59.3	0.00
Chico.....	104	53	71.3	0.00	San Miguel.....	98	52	66.1	0.00
Cicero.....	80	31	51.5	0.30	San Pedro.....	96	58	68.2	0.00
Colfax.....	96	44	67.0	0.00	Santa Ana.....	106	58	70.7	0.00
Corning.....	106	56	74.0	0.00	Santa Barbara (1).....	93	45	62.4	0.06
Crescent City.....	104	50	77.5	3.27	Santa Clara.....	87	42	60.8	0.00
Davisville.....	98	50	68.1	0.00	Santa Cruz (1).....	84	47	61.9	0.00
Delano.....	105	58	78.2	0.00	Santa Cruz (2).....	78	42	64.3	0.00
Delta.....	102	52	70.3	0.00	Santa Margarita.....	88	46	63.1	0.00
Downey.....	99	59	69.8	0.00	Santa Monica.....	89	60	69.7	0.00
Dunnigan.....	108	56	79.0	0.00	Santa Paula.....	99	60	73.9	0.00
Dunsmuir.....	96	42	64.6	0.40	Santa Rosa.....	86	42	65.0	0.00
Edgewood.....	91	45	63.7	1.72	Selma.....	100	60	72.9	0.00
El Dorado.....	101	54	72.0	0.00	Seven Palms.....	115	65	89.0	0.00
Elmira.....	100	58	71.6	0.00	Shingle Springs.....	99	55	75.6	0.00
El Verano.....	92	54	66.5	0.00	Sims.....	100	40	65.5	0.65
Emigrant Gap.....	85	34	56.6	0.00	Soledad.....	86	50	63.1	0.00
Esparto.....	102	55	77.1	0.00	Sonoma.....	88	46	63.2	T.
Evergreen.....	100	55	71.2	0.00	Soquel.....	84	48	66.5	0.00
Farmington.....	99	55	71.2	0.00	South Vallejo.....	78	46	53.5	0.00
Felton.....	98	48	69.0	0.00	Spadra.....	108	57	73.0	0.00
Fernando.....	106	52	73.8	0.00	Steeles.....	87	45	60.3	0.00
Florence.....	92	55	69.8	0.00	Stockton (2).....	90	58	70.9	0.00
Folsom.....	100	58	71.1	0.00	Suisun City.....	99	50	66.3	0.00
Fort Bidwell.....	91	33	58.6	0.33	Susanville.....	88	42	61.8	0.14
Fort Gaston.....	105	41	64.8	0.46	Tehachapi.....	87	40	66.6	0.00
Fort Mason.....	72	45	56.9	0.06	Tehama.....	96	59	72.9	0.00
Galt.....	100	50	75.5	0.00	Templeton.....	105	52	69.1	0.00
Georgetown.....	89	38	63.4	0.10	Towles.....	92	44	65.9	0.00
Gilroy.....	93	53	65.2	0.00	Tracy.....	94	56	73.0	0.00
Girard.....	93	45	64.5	0.00	Traver.....	102	60	80.5	0.00
Glen Ellen.....	95	49	65.5	0.00	Tropico.....	104	58	71.4	0.00
Goshen.....	100	55	76.5	0.00	Truckee.....	86	35	56.4	0.00
Grass Valley.....	100	55	76.5	0.00	Tulare.....	105	58	78.5	0.00
Haywards.....	84	54	61.6	0.00	Turlock.....	98	58	75.4	0.00
Hollister.....	89	50	66.0	0.00	Upper Mattole.....	94	40	61.0	0.74
Hornbrook.....	98	40	62.9	0.60	Vacaville (1).....	97	55	70.4	0.00
Hydesville.....	78	39	56.3	0.67	Vacaville (2).....	97	57	71.9	0.00
Indio.....	111	65	88.3	0.00	Valley Springs.....	96	50	71.9	0.00
Imperial.....	98	52	68.6	0.00	Vina.....	104	58	76.8	0.00
Iowa Hill.....	94	47	67.1	0.08	Volcano Springs.....	118	75	95.7	0.00
Jolon.....	98	56	70.3	0.00	Volta.....	102	54	76.8	0.00
Keeler.....	98	58	81.4	0.00	Walla Walla Ck.....	94	32	59.8	0.28
Keene.....	95	47	70.2	0.00	Westley.....	94	60	77.3	0.00
Kingsburgh.....	102	56	75.9	0.00	Wheatland.....	98	45	69.4	0.00
King City.....	92	48	64.1	0.00	Whittier.....	106	53	70.3	0.00
Knights Landing.....	90	58	70.5	0.00	Williams.....	100	58	74.8	0.00
La Grange.....	104	47	71.6	0.00	Willow (1).....	101	43	71.5	0.20
Lathrop.....	98	58	75.4	0.00	Willow (2).....	105	32	69.6	0.00
Laurel.....	94	49	65.2	0.00	Woodland.....	91	52	70.7	0.00
Lemoore.....	105	55	76.1	0.00	<i>Colorado.</i>				
Lewis Creek.....	101	53	75.9	0.00	Abbott.....				1.00
Livermore.....	94	47	61.0	0.00	Agate.....	100	66	77.0	0.62
Livingston.....	102	55	76.3	0.00	Alma.....	73	21	49.9	0.07
Los Angeles.....	106	55	71.5	0.00	Amherst.....				3.41
Los Gatos (2).....				0.00	Ariaphapa.....	99	48	68.5	0.11
Lammoth Tank.....	112	72	88.7	0.00	Arosa.....				0.43
Martinez.....	90	54	70.7	0.00	Bennet.....	108	45	57.4	0.89
Marysville.....	90	60	69.9	0.10	Box Elder.....				0.66
Menlo Park.....	92	52	63.7	0.00	Brackenridge.....	83	48	61.5	0.25
Merced.....	98	58	73.0	0.00	Byers.....	102	48	83.6	0.73
Modesto.....	96	58	74.3	0.00	Canon City.....	98	42	70.0	0.10
Mojave.....	105	55	76.6	0.00	Castle Rock.....	96	29	64.0	0.00
Montague.....	104	48	66.2	1.15	Chayenne Wells.....	95	45	70.2	0.00
Monterey.....	78	48	58.6	0.00	Chromo.....				0.66
Monterey (H. d. M.).....	80	48	59.5	0.00	Climax.....	65	18	44.8	0.68
Mount Hamilton.....	82	32	57.6	0.00	Crook.....				1.93
Napa.....	94	52	65.5	0.00	Cumbres.....	70	33	50.4	0.39
National City.....	104	41	68.4	0.00	Doer Trail.....	99	38	65.8	0.77
Newark.....	109	50	66.0	0.00	Delta.....	96	45	69.4	0.40
Newhall.....	106	30	65.9	0.00	Durango (1).....				0.90
Newman.....	98	56	76.2	0.00	Eagle Farm.....				0.03
Niles.....	96	55	70.9	0.00	Elkhorn.....				1.60
Norwalk.....	110	55	73.5	0.03	First View.....	100	48	73.0	0.02
Oakland (1).....	81	45	59.5	T.	Fort Crawford.....	84	34	61.8	0.45
Oakland (2).....	74	50	60.7	0.00	Fort Lewis.....	81	24	55.8	0.05
Ogilby.....	116	74	93.5	0.00	Fort Logan.....	96	35	66.8	0.05
Ontario.....	109	50	75.2	0.00	Fort Morgan.....	96			0.37
Oroville.....	99	54	74.7	0.45	Fruita.....	99	38	72.2	T.
Pajaro.....	74	48	59.1	0.00	Georgetown.....	81	30	58.5	0.32
Pasadena.....	100	41		0.05	Greenhorn.....	89	41	65.6	0.42
Paso Robles.....	96	49	68.9	0.00	Gunnison.....	83	25	52.7	0.00
Petaluma.....	94	53	64.3	0.00	Hugo.....	95	45	70.2	0.00
Placerville (1).....	98	48	68.4	0.00	Husted.....	95	34	64.2	0.62
Placerville (2).....	93	38	68.0	0.00	Julesburg.....	102	39	70.8	1.71